PA _NT COOPERATION TREAT

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing: 31 August 2000 (31.08.00)	
International application No.: PCT/EP00/01105	Applicant's or agent's file reference: 402544WO
International filing date: 11 February 2000 (11.02.00)	Priority date: 22 February 1999 (22.02.99)

Applicant:
VAN ELSAS, Peter, Alexander et al

1. The designated Office is hereby notified of its election made:

   [X] in the demand filed with the International preliminary Examining Authority on:

   15 May 2000 (15.05.00)

   [ ] in a notice effecting later election filed with the International Bureau on:

2. The election   [X] was

   [ ] was not

   made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer: J. Zahra Telephone No.: (41-22) 338.83.38

Form PCT/IB/331 (July 1992)   3484168

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

KRUK, WIGGERT.J.
KONINKLIJKE KPN N.V.
P.O. Box 95321
NL-2509 CH Den Haag
PAYS-BAS

AH. Nancy

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing (day/month/year)	27.04.2001

Applicant's or agent's file reference	
402544WO	**IMPORTANT NOTIFICATION**

International application No. PCT/EP00/01105	International filing date (day/month/year) 11/02/2000	Priority date (day/month/year) 22/02/1999

Applicant
KONINKLIJKE KPN N.V. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.

2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.

3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. **REMINDER**

    The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

    Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

    For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.
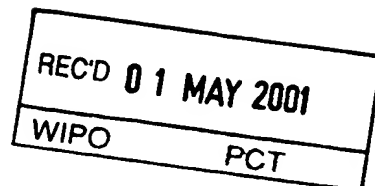
Name and mailing address of the IPEA/	Authorized officer
European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Schall, H Tel.+49 89 2399-2647

Form PCT/IPEA/416 (July 1992)

PATENT COOPERATION TREATY

PCT

REC'D **0 1 MAY 2001**

WIPO PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

14

Applicant's or agent's file reference 402544WO	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP00/01105	International filing date *(day/month/year)* 11/02/2000	Priority date *(day/month/year)* 22/02/1999

International Patent Classification (IPC) or national classification and IPC

G06F17/60

Applicant

KONINKLIJKE KPN N.V. et al.

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 9 sheets.

3. This report contains indications relating to the following items:

   I   ☒   Basis of the report

   II   ☐   Priority

   III   ☐   Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

   IV   ☐   Lack of unity of invention

   V   ☒   Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations suporting such statement

   VI   ☐   Certain documents cited

   VII   ☒   Certain defects in the international application

   VIII   ☒   Certain observations on the international application

Date of submission of the demand 15/05/2000	Date of completion of this report 27.04.2001

Name and mailing address of the international preliminary examining authority:
 	
    European Patent Office
    D-80298 Munich
    Tel. +49 89 2399 - 0 Tx: 523656 epmu d
    Fax: +49 89 2399 - 4465
	Authorized officer
	
	Bauer, R
	
	Telephone No. +49 89 2399 7483

Form PCT/IPEA/409 (cover sheet) (January 1994)

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:
   Description, pages:

1-8	as received on	23/02/2001	with letter of	21/02/2001

   Claims, No.:

1-4	as received on	23/02/2001	with letter of	21/02/2001

   Drawings, sheets:

1/1	as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description,   pages:

   ☐ the claims,   Nos.:

☐ the drawings,   sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1-4
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-4
Industrial applicability (IA)	Yes:	Claims	1-4
	No:	Claims	

2. Citations and explanations
    see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

Reference is made to the following documents:

  D1:   WO 96 25012 A (HILL JULIAN RICHARD ;YATES MARTIN JOHN (GB);
        BAGLEY MARK (GB); BRI) 15 August 1996 (1996-08-15)

  D2:   SYCARA K ET AL: 'Coordination of multiple intelligent software agents'
        INTERNATIONAL JOURNAL OF INTELLIGENT AND COOPERATIVE
        INFORMATION SYSTEMS, vol. 5, no. 2/03, June 1996 (1996-06), pages
        181-211 211, XP002099255 ISSN: 0218-2157

Re Item V : Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1.   The Examiner is of the opinion that the subject-matter of claims 1-4 does not meet the requirements of Art. 33 PCT in the light of prior art documents D1 and D2.

1.1   D1 discloses a computer system using agents (Abstract). One particular agent is the end-user agent (Fig 2, 10; p 37-39, "AA Specialisations" and "End-User Agent 202"). This agent anticipates the claimed personal agent, since it is told that the end-user agent is "the agent employed when the user has submitted identifiers" (p 38, l 25), and hence each end-user agent is arranged to communicate with one single end-user.
      The rest of the system can be considered as being a service agent sub-system. This system must inherently comprise a coordination subsystem.
      Hence the subject-matter of claim 1 is anticipated.

      Claim 2 recites features that are implicit in the system of D1, hence it lacks novelty.

      Further, this personal agent comprises means for adjusting itself to the "behaviour of the user", via profile information ("The facilities ... Set Profile ..." p 38, l 29-30). Hence the subject-matter of claim 3 is anticipated.

      The "Sales Agent 207" (p 41-42) anticipates the claimed "personal service agent", and is further configurable via a profile.

Therefore, none of the claims contain subject-matter which satisfy the requirements set out in Art. 33(2) PCT, in the light of D1.

1.2   D2 discloses another computer system using agents (Title).
Its "interface agent" (p 183, para. 2 ; p 187-188 "2.1.1.") is said to be "tied closely to an individual human's goals", and hence anticipates the claimed personal agent.
D2 further discloses task agents and information agents which form at least one service agent sub-system (p 183, same para.)
The whole distributed system architecture is depicted in Fig 1.

A skilled person recognizes that there is implicitly in D2 a coordinating sub-system and a "central" control unit which comprises the addresses of the agents and processors for coordinating the interrelations amongst the agent community.

Hence the system of D2 anticipates the system as claimed in claims 1 and 2.

p 189, para. 1, stipulates that "[for the interface agent] user models and preferences could be automatically acquired". Further, more generally the agents "can be customized for new users to take into consideration particular user's preferences" (p 184, "para. "Modularity and Reusability").
Hence the subject-matter of claim 3 is anticipated by D2.

D2 further describes a particular implementation of those concepts, the "visitor hosting task", (p 198, last para.), which uses "various personal calendar management task agents" which anticipate the personal service agent as claimed in claim 4.

Therefore, none of the claims contain subject-matter which satisfy the requirements set out in Art. 33(2) PCT, in the light of D2.

Re Item VII : Certain defects in the international application

2.   The Applicant has cited and discussed prior art document D1, and thus has complied with the requirements of Rule 5.1 a.ii) PCT . However, as indicated in

the preliminary opinion, it would appear that D2 is also very relevant and should have also been cited and discussed.

3.   The two-part form used does not reflect the features known from the relevant prior art (Rule 6.2 b) PCT).
Further, it the use of "characterized by" for indicating the two-part form should be restricted to the independent claims, and not be used as such in the dependent claims. Wordings like "further characterized" or "(further) comprising" are preferred.

Re Item VIII : Certain observations on the international application

4.   The claims still contain some unclarities (Art. 6 PCT).

4.1   The expression "being arranged to communicate with only one single user" is not totally clear, because it is held from the description that a personal agent communicates both with one single user and also with others agents.

4.2   The expression "means for adjusting the personal (service) agent to the behaviour of the associated user" used in claims 3 and 4 is not clear.

4.3   In claim 4, it should have first been said that the personal service agent is part of the personal agent system before using it for further characterising the system. Further, the presence of the "personal agent", "service agent" and "personal service agent" introduces unclarities. It is not clear, nor derivable from the claims, whether a personal service agent is a particular type of personal agent or service agent.

Personal agent system.

The invention relates to a personal agent system within a computer system.

In addition, the invention relates to a method for providing a personal agent
5   system within a computer system.

Such systems and methods are generally known. An example thereof is
Microsoft's Firefly system. In said system, a user may have an agent - arranged as a
computer program within a computer network - carry out an order to compose a list
having musical compact discs which are interesting to the user. The agent is arranged
10   to carry out said task autonomously, the agent being capable of shifting within the
computer network and making contact with other agents who are active within the
system. From the contact with other agents, inter alia, the agent may obtain information
to complete his task.

WO9625012 discloses an information service provision system for making services
15   available by means of one or more communication networks. The system makes use of
intelligent software agents in a distributed processing environment (DPE). The agents co-
operate to provide access for system users to the services. The agents are reconfigurable
to modify functionality of the system available to the user: the agent reconfigures itself in
response to a user input to the system, and modifies said functionallity accordingly. The
20   goal of the prior-art disclosure is advanced multimedia transmission over
telecommunication networks, to be controlled by users, via said reconfigurable agents,
executing the user's commands.

The goal of our invention, on the contrary, is to lower the heavy burden of computer
networks, caused by conventional "stand alone" agents used in state-of-the-art agent
25   systems, each of said agents being rather extensive and complex computer programs,
required to be able to carry out their task, to move through the computer network and to
make contact with other agents all of those agents maintaining an extensive mutual
communication.

Moreover, due to the independency of all those individual ("stand alone") agents, it is
30   hardly feasible to control all contacts made by those agents with third parties. A
supplementary goal of the invention is to provide a system with advanced control of all
software agents. To this end, the system according to the invention comprises a personal

AMENDED SHEET

WO9625012 discloses an information service provision system for making services available by means of one or more communication networks. The system makes use of intelligent software agents in a distributed processing environment (DPE). The agents co-operate to provide access for system users to the services. The agents are reconfigurable

5 to modify functionality of the system available to the user: the agent reconfigures itself in response to a user input to the system, and modifies said functionallity accordingly. The goal of the prior-art disclosure is advanced multimedia transmission over telecommunication networks, to be controlled by users, via said reconfigurable agents, executing the user's commands.

10 The goal of our invention, on the contrary, is to lower the heavy burden of computer networks, caused by conventional "stand alone" agents used in state-of-the-art agent systems, each of said agents being rather extensive and complex computer programs, required to be able to carry out their task, to move through the computer network and to make contact with other agents all of those agents maintaining an extensive mutual

15 communication.

Moreover, due to the independency of all those individual ("stand alone") agents, it is hardly feasible to control all contacts made by those agents with third parties. A supplementary goal of the invention is to provide a system with advanced control of all software agents. To this end, the system according to the invention comprises a personal

20 agent sub-system comprising a plurality of personal agents, each personal agent being arranged to communicate with only one single user. Moreover the system according to the invention comprises at least one service agent sub-system, comprising a plurality of service agents, each service agent being arranged for carrying out a specific task for the user, and each service agent being connected to one of said personal agents. Finally, the

25 system according to the invention comprises a processing sub-system, comprising at least one processor for processing data of said service agents.

Simply said, the invention provides for a regular and efficient architecture offering a much better controllability of the agents. Each user only communicates directly with his/her personal agent, which subsequently passes on orders from the user to the relevant

30 service agent and vice versa. In addition, problems regarding unreliable third parties are avoided since the personal agent and the (personal) service agents of a user exclusively operate for their own user. Since interaction with agents of third parties does not take

AMENDED SHEET

place directly, but by way of a neutral processor, it is avoided that confidential information is inadvertently exchanged.

By self-learning agents with respect to the user behaviour, preferences etc. the interactions with the user are minimized, resulting in a reduction of system load.

5   Moreover, an additional effect is that the quality of the service to the user will increase in course of time.

The invention will be further clarified in the following description of an exemplary embodiment of the invention, with reference to the drawing enclosed.

The single figure schematically shows an example of a system according to the

10 invention.

The figure shows a personal agent system 1 according to the invention. System 1 is provided with a receptor section 2 for setting up a communicative connection with users, a central control unit 6 for distributing information flows, and an environment 10 of personal agents, two environments 20, 30 having personal service agents, and an

15 environment 40 for processing parts.

The personal agent environment 10 of the system 1 in this example is provided with four personal agents 11, 12, 13 and 14. Each personal agent is allotted to a single user who may set up a connection exclusively with his own personal agent.

For a user, his own personal agent is the only means by which he may utilise the

20 system 1. The personal agents are therefore arranged to communicate with their own user, e.g., to receive orders or to pass on information obtained to the user. In addition, the personal agent is arranged for communication with personal service agents to be discussed below, e.g., for passing on orders to, or receiving results from, the personal service agents.

25 In this example, there are two personal service-agent environments present, arranged as a secretary environment 20 having personal secretary agents in the form of secretaries 21, 22, 23 and, as a personal travelling-agent environment having travelling agents 31, 32 and 34. Personal service agents, such as the travelling agents and secretaries referred to above, operate exclusively for a single user. To achieve this, the

30 personal service agents are connected to the personal agent of their own user. Having said this, the invention is not limited to application with two service-agent environments; any number of service-agent environments may be chosen.

AMENDED SHEET

The processing-part environment 40 is provided with a processing part in the form of an appointment maker 41. Said appointment maker 41 is arranged for processing, based on data as supplied by a service agent such as, e.g., a secretary and, if necessary, making contact with other service agents. In this connection, the data of the

5   service agents is treated confidentially. The appointment maker 41 is referred to by way of example of a processing part, and the invention is also applicable with other processing parts.

A user is always provided with a personal agent, since the communication with the personal agent system takes place by way of the personal agent. In addition, each

10   user is provided with at least a personal service agent, but the user does have the choice of the service agent he prefers to use. Since the user chooses the functions required by him, there occur no unused elements in the system. As a result, the system is kept as small as possible, and therefore operates efficiently.

The personal agent 11 disposes of two personal service agents, i.e., a secretary

15   21 and a travelling agent 31. The secretary 21 is implemented in the form of an independently operating program which is especially arranged for carrying out specific tasks, in this case carrying out secretarial tasks such as, e.g., managing the agenda of the user and making appointments with third parties. The travelling agent 31 is also implemented in the form of an independently operating program which is especially

20   arranged for carrying out specific tasks, in this case, by way of example, planning a travelling schedule.

Since the user is permitted to choose which tasks he wants to have the personal agent system carry out, not all possible service agents need be allotted to a personal agent. Thus, the personal agent 13 is only provided with a secretary 23, and the

25   personal agent 14 is only provided with a travelling agent 34.

Because in the system according to the invention, the agents and agents are capable only of communicating with predetermined parties according to fixed rules, therewith determining a social hierarchy, the reliability of the system is guaranteed. Because the hierarchy also prevents unnecessary communication, the burden on the

30   system is reduced. Therewith, a personal agent system is obtained which is reliable, purposeful and efficient to users.

AMENDED SHEET

System 1 is implemented in the form of a computer system, including a computer network. The environments 10, 20, 30 and 40 may each wholly or partly consist of physical and logical environments. In this connection, a physical environment is determined by a single computer, and a logical environment may

5   comprise several computers, the boundaries of the environment being determined by participants' data, such as, e.g., an address list which may be stored in, e.g., the central control unit 6.

The communication takes place by way of communicative connections comprising all options for transferring data, both unidirectional and bidirectional

10   connections, as well as permanent and temporary connections. In particular, there is deemed to be included exchange of data within networks, such as intranet, Internet, and the protocols required for the exchange of data within a computer network, and in particular relating to agent software.

In this embodiment, system 1 is arranged, by way of example, for four users.

15   The invention may, however, be applied to other numbers of users. In this example, the users may make contact, by way of a personal computer 60, with a modem by way of a telephone line, with the receptor section 2. By way of a user interface of the personal computer 60, the users may pass on information to, and receive it from, system 1. The way of interaction, which is referred to here, of the user with the system 1 by way of the

20   receptor section 2, is referred to here exclusively by way of example; the invention is also applicable with other ways of communication capable of being applied between a user and a computer system. Such ways are known, so that for briefness' sake there is refrained from a detailed description.

The personal agents 11, 12, 13 and 14, as well as the service agents 21, 22, 23,

25   31, 32 and 34 are implemented as independently operating programs such as, e.g., an agent. Such programs are generally known, so that for briefness' sake there is refrained from a detailed description.

In operation, a first user makes contact, by way of a personal computer 60, with the receptor section 2 of the system 1. The receptor section 2 provides a

30   communication channel to the central control unit 6 which, based on the identity of the first user, locates its associated personal agent 11, and sets up a connection. In this example, the central control unit 6 is implemented with an address book with location

AMENDED SHEET

data of all parts of the system 1. The various parts of the system are capable of obtaining, at the central control unit 6, the data required for making contact with another part. Based on the data present within the central control unit 6, it may decide whether or not to provide information to a part in question; as a result, the central

5   control unit 6 protects the hierarchy within system 1. Therewith, it is also achieved that confidential data is not supplied to unreliable parties.

An example of a service to be rendered by the personal agent system according to the invention is making appointments.

A first user then passes on to his agent 11 that he wants to make an appointment

10   with, e.g., a second and a third user on a point in time X and a location Z.

The agent 11 passes on the information relating to the appointment to the secretary 21, who is also associated with the first user. The secretary 21 analyses the information and makes contact with a processing unit 41 operating as an appointment maker, with the instruction of making an appointment for the first, second and third

15   users at the point in time between X and Y and location Z. The appointment maker 41 then makes contact with the secretaries 22 and 23 of the second and third users, respectively. Said secretaries 22 and 23 check whether the appointment in question is permitted to take place, based on the agenda of their user. Both secretaries 22 and 23 pass on their wishes relating to the time and place to the appointment maker 41, who

20   subsequently, based on the wishes of all secretaries involved, determines the optimum appointment. In this connection, the location and time offering the best solution for all users are sought. For all those involved, the most acceptable point in time proves to be X' and for the location Z'. Having said this, in another modification of the embodiment processing parts may also be subject to other criteria in processing data from service

25   agents. In the present example, the wishes of a specific user might prevail over those of other users, e.g., since said user is available only at, e.g., a specific number of points in time, or is bound to a specific location.

The appointment maker 41 passes on the information on the appointment determined by him on point in time X' and location Z' to the secretaries 21, 22 and 23,

30   who note the appointment in the agenda of the user in question and notify the associated agent 11, 12 and 13 of the appointment. When their user makes contact again, the agents 11, 12 and 13 will notify the user of the appointment.

The agent 11, which has been notified of the information of the appointment in the meantime, now notifies the travelling agent 31 associated with it of the appointment with the instruction of drawing up a travelling schedule with which the user will arrive at the appointed location at the appointed time. The travelling agent 31 then draws up

5   the required travelling schedule and passes it on to the agent 11, who will pass on said schedule at a next contact with the user. In a modification of the embodiment of the invention, the personal service agents of a user may directly exchange specified information, apart from the option referred to above of exchanging information by way of the personal agent. In this connection, the service agents must be aware of each

10   other's existence and options. A secretary of the travelling agent of a user might hear, e.g., what the travelling time between two locations amounts to, in order to be capable, e.g., of better managing the agenda of the user in this way. Since both agents operate exclusively for the same user, problems relating to confidential data are avoided. Due to said direct communication between the service agents, the burden on the system is

15   reduced.

Although in this example there was assumed a central control unit 6, provided with an address book for regulating the social hierarchy within the system, other embodiments of such a control system are also applicable, such as, e.g., identification of agents by way of a password or key. There may also be applied a bulletin-board system.

20   In a modification of the embodiment of the invention, the personal agents are provided with a self-learning module which is arranged to learn from the interaction with the user and to adjust the behaviour of the agents thereto. Such modules are formed by a computer program and are generally known. Since the personal agent is capable of adjusting itself to the wishes of the user, the user receives a better service

25   rendered by the personal agents and, in doing so, the amount of communication is reduced, which further decreases the burden on the system.

In another modification of the embodiment of the invention, the personal service agents are additionally provided with such a self-learning module, so that the service agents, too, achieve the advantages referred to above. In addition, it is possible here to

30   have the personal agent exchange learning information with the service agent in question in order thus to accelerate the learning process.

In a further modification of the embodiment, it is possible that the self-learning modules of personal agents within an agent environment exchange learning information in order thus to learn from other personal agents. This may take place, e.g., by having the programs which constitute the agents communicate among themselves. For this

5   purpose, the user must expressly give his permission to his personal agent in advance, and in this connection indicate that the agent is permitted to gain contact with agents of third parties and indicate which personal information the agent may liberate to third parties. Furthermore, it is possible to indicate with which agents the agent of the user is permitted to communicate. Through this selective communication, it is prevented that

10   confidential information of the user be inadvertently passed on, as a result of which the trust of the user in the agent will increase. In this connection, the data traffic between the agents is limited to the required amount, so that the system is not unnecessarily burdened. Such an exchange of learning information is also possible within an environment of service agents in the way described above.

15   The implementation of the invention in a computer system may take place in various ways; the embodiment referred to in the example must be considered as being non-limitative. The program parts for the implementation of the elements of the invention may be distributed over a computer network, a program part, e.g., being distributed over several computers, or various parts being present in one and the same

20   computer, or several parts of the same program utilising, e.g., multi-threading.

        In an exemplary embodiment of the invention, a personal agent may be formed for a new user at the first instance of use of the personal agent system. This may be effected, e.g., by making a copy of a generic personal agent program, and then personalising said copy by, e.g., adding personal data of the user to the program. In the

25   same way, the user may initiate the personal service agents desired by him. The agent with associated agents created in this manner may then, e.g., be added to the central control unit and thereby be ratified.

AMENDED SHEET

CLAIMS

1.   Personal agent system within a computer system, characterised by
a personal agent sub-system (10) comprising a plurality of personal agents (11-14),
5   each personal agent being arranged to communicate with only one single user;
at least one service agent sub-system (20,30), comprising a plurality of service agents
(21-23, 31-34), each service agent being arranged for carrying out a specific task for the
user, and each service agent being connected to one of said personal agents;
a co-ordinating sub-system (40), comprising one or more co-ordination processors (41)
10   for mutual co-ordination of actions of said service agents.

2.   Personal agent system according to claim 1, characterised by a central control
unit (6) comprising the addresses of said agents (11-14, 21-23, 31-34) and processors
(41) and arranged for connecting each user to one personal agent..

15

3.   Personal agent system according to any of the preceding claims, characterised in
that a personal agent (11, 12, 13, 14) comprises means for adjusting the personal agent
(11, 12, 13, 14) to the behaviour of the associated user.

20   4   Personal agent system according to any of the preceding claims, characterised in
that a personal service agent (21, 22, 23, 31, 32, 34) comprises means for adjusting the
personal service agent (21, 22, 23, 31, 32, 34) to the behaviour of the associated user.

AMENDED SHEET   1

PATENT COOPERATION TREATY ●

PCT

To:

KONINKLIJKE KPN N.V.
Attn. Klein, Bart
P.O. Box 95321
NL-2509 CH Den Haag
NETHERLANDS

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

	Date of mailing *(day/month/year)* 04/05/2000
Applicant's or agent's file reference 402544WO	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No. PCT/EP 00/01105	**International filing date** *(day/month/year)* 11/02/2000
Applicant KONINKLIJKE KPN N.V. et al.	*Identiek aan M6*

1. **[X]** The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

   Filing of amendments and statement under Article 19:
   The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

   When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

   Where? Directly to the   International Bureau of WIPO
   34, chemin des Colombettes
   1211 Geneva 20, Switzerland
   Fascimile No.: (41–22) 740.14.35

   For more detailed instructions, see the notes on the accompanying sheet.

2. **☐** The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. **☐** **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

   ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

   ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Further action(s):**   The applicant is reminded of the following:

   Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

   Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

   Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL–2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Ahmed Soliman

Form PCT/ISA/220 (July 1998)

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international pbulication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the International application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped),whether

    (i)   the claim is unchanged;

    (ii)   the claim is cancelled;

    (iii) the claim is new;

    (iv) the claim replaces one or more claims as filed;

    (v)   the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."

2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."

3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."

4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international appplication is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 402544WO	**FOR FURTHER ACTION**	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.
International application No. PCT/EP 00/01105	International filing date *(day/month/year)* 11/02/2000	(Earliest) Priority Date *(day/month/year)* 22/02/1999
Applicant KONINKLIJKE KPN N.V. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of _____3_____ sheets.

[X] It is also accompanied by a copy of each prior art document cited in this report.

---

1. **Basis of the report**

    a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

    [ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

    b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

    [ ] contained in the international application in written form.

    [ ] filed together with the international application in computer readable form.

    [ ] furnished subsequently to this Authority in written form.

    [ ] furnished subsequently to this Authority in computer readble form.

    [ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

    [ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. [ ] **Certain claims were found unsearchable (See Box I).**

3. [ ] **Unity of invention is lacking (see Box II).**

4. With regard to the **title,**

    [X] the text is approved as submitted by the applicant.

    [ ] the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

    [X] the text is approved as submitted by the applicant.

    [ ] the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No.   1

    [X] as suggested by the applicant.   [ ] None of the figures.

    [ ] because the applicant failed to suggest a figure.

    [ ] because this figure better characterizes the invention.

INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7   G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7   G06F   H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96 25012 A (HILL JULIAN RICHARD ;YATES MARTIN JOHN (GB); BAGLEY MARK (GB); BRI) 15 August 1996 (1996-08-15)	1-4,10, 11
Y		5-9, 12-15
	page 20, line 1 -page 23, line 11 page 26, line 5 -page 37, line 11; figures 1,9,10	
Y	MITCHELL T ET AL: "EXPERIENCE WITH A LEARNING PERSONAL ASSISTANT" COMMUNICATIONS OF THE ASSOCIATION FOR COMPUTING MACHINERY, vol. 37, no. 7, 1 July 1994 (1994-07-01), pages 81-91, XP000485264 ISSN: 0001-0782 page 81-87	5-9, 12-15

-/--

[X] Further documents are listed in the continuation of box C.   [X] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the International search	Date of mailing of the international search report
26 April 2000	04/05/2000

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Bowler, A

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X	SYCARA K ET AL: "Coordination of multiple intelligent software agents" INTERNATIONAL JOURNAL OF INTELLIGENT AND COOPERATIVE INFORMATION SYSTEMS, vol. 5, no. 2/03, June 1996 (1996-06), pages 181-211 211, XP002099255 ISSN: 0218-2157 page 182-191; figure 1	1-4,10, 11
A	OMIYA T ET AL: "SERVICE CREATION AND EXECUTION DOMAIN CONCEPT FOR THE INTELLIGENT NETWORK" IEICE TRANSACTIONS, vol. E74, no. 11, 1 November 1991 (1991-11-01), pages 3663-3671, XP000280947 ISSN: 0917-1673 page 3666, column 2 -page 3670	1,10,11
A	JANEZ SKUBIC ET AL: "SERVICE MANAGEMENT ARCHITECTURE" INNOVATIONS IN SWITCHING TECHNOLOGY, STOCKHOLM, MAY 28 - JUNE 1, 1990, vol. 4, no. SYMP. 13, 28 May 1990 (1990-05-28), pages 155-160, XP000130978 INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS page 154, column 1 -page 160	1,10,11
A	US 5 790 974 A (TOGNAZZINI BRUCE) 4 August 1998 (1998-08-04) page 1, line 50 -page 4, line 36	1,10,11

1

INTERNATIONAL SEARCH REPORT

Information on patent family members

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 9625012	A	15-08-1996	AU 4629196 A		27-08-1996
			CA 2212377 A		15-08-1996
			EP 0808545 A		26-11-1997
			FI 973240 A		03-10-1997
			JP 10513325 T		15-12-1998
			NO 973623 A		06-10-1997
US 5790974	A	04-08-1998	NONE		

PATENT COOPERATION TREATY

PCT

To:

KRUK, WIGGERT.J.
KONINKLIJKE KPN N.V.
P.O. Box 95321
NL-2509 CH Den Haag   KPN GIE
PAYS-BAS
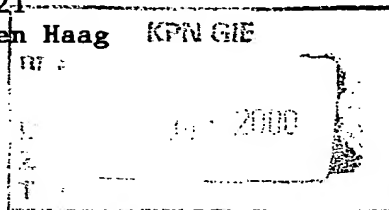
**NOTIFICATION OF RECEIPT
OF DEMAND BY COMPETENT INTERNATIONAL
PRELIMINARY EXAMINING AUTHORITY**

(PCT Rules 59.3(e) and 61.1(b), first sentence
and Administrative Instructions, Section 601(a))

Date of mailing (day/month/year)	0 2. 06. 00

Applicant's or agent's file reference	IMPORTANT NOTIFICATION
402544WO	

International application No.	International filing date (day/month/year)	Priority date (day/month/year)
PCT/EP 00/01105	11/02/2000	22/02/1999

Applicant

KONINKLIJKE KPN N.V. et al.

1. The applicant is hereby **notified** that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

<div align="center">

15/05/2000

</div>

2. This date of receipt is:

☑ the actual date of receipt of the demand by this Authority (Rule 61.1(b)).

☐ the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).

☐ the date on which this Authority has, in response to the invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections.

3. ☐ **ATTENTION:** That date of receipt is **AFTER** the expiration of 19 months from the priority date. Consequently, the election(s) made in the demand does (do) not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)). Therefore, the acts for entry into the national phase must be performed within 20 months from the priority date (or later in some Offices) (Article 22). For details, see the *PCT Applicant's Guide*, Volume II.

☐ *(If applicable)* This notification confirms the information given by telephone, facsimile transmission or in person on:

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

Name and mailing address of the IPEA/	Authorized officer
European Patent Office D-80298 Munich Tel. (+49-89) 2399-0, Tx: 523656 epmu d Fax: (+49-89) 2399-4465	ADAMS T M Tel. (+49-89) 2399-2668
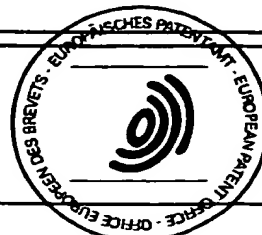
The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below.

IPEA/ ___EP___

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of
international preliminary examination according to the Patent Cooperation Treaty and
hereby elects all eligible States (except where otherwise indicated).

For International Preliminary Examining Authority use only	
Identification of IPEA	Date of receipt of DEMAND

Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION		Applicant's or agent's file reference
International application No.	International filing date *(day/month/year)*	402544WO
		(Earliest) Priority date *(day/month/year)*
PCT/EP 00/01105	11 FEB 2000(11/02/2000)	22 FEB 1999(22/02/99)

Title of invention

Personal-assistant system.

Box No. II   APPLICANT(S)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*	
KONINKLIJKE KPN N.V. 7 Stationsplein 9726 AE GRONINGEN The Netherlands	Telephone No.: +31 70 332 36 78 Facsimile No.: +31 70 332 38 40 Teleprinter No.:

State *(that is, country)* of nationality: NL	State *(that is, country)* of residence: NL

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

VAN ELSAS
Peter Alexander
Cederstraat 20
1505 AD ZAANDAM
The Netherlands

State *(that is, country)* of nationality: NL	State *(that is, country)* of residence: NL

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

VOGEL
Heidi
Biltstraat 461
3572 AX UTRECHT
The Netherlands

State *(that is, country)* of nationality: NL	State *(that is, country)* of residence: NL

[X]   Further applicants are indicated on a continuation sheet.

International application No.

PCT/EP 00/01105

Continuation of Box No. II	APPLICANT(S)

If none of the following sub-boxes is used, this sheet should not be included in the demand.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

MURNANE
Aisling
Newtonstraat 197
2562 KG   DEN HAAG
The Netherlands

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
NL	NL

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

ROOS VAN RAADSHOOVEN
Leon Antonius
Violiervaart 55
2724 VS   ZOETERMEER
The Netherlands

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
NL	NL

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

State *(that is, country)* of nationality:	State *(that is, country)* of residence:

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

State *(that is, country)* of nationality:	State *(that is, country)* of residence:

☐   Further applicants are indicated on another continuation sheet.

Form PCT/IPEA/401 (continuation sheet) (July 1998; reprint January 2000)   *See Notes to the demand form*

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The following person is [X] agent ☐ common representative

and [X] has been appointed earlier and represents the applicant(s) also for international preliminary examination.

☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.

☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*	Telephone No.:
KRUK, Wiggert Johan KONINKLIJKE KPN N.V. P.O. BOX 95321 2509 CH The Hague The Netherlands	+31 70 332 36 78
	Facsimile No.:
	+31 70 332 38 40
	Teleprinter No.:

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION

Statement concerning amendments:*

1. The applicant wishes the international preliminary examination to start on the basis of:

   [X] the international application as originally filed

   the description   [X] as originally filed
                       ☐ as amended under Article 34

   the claims   [X] as originally filed
                       ☐ as amended under Article 19 (together with any accompanying statement)
                       ☐ as amended under Article 34

   the drawings   [X] as originally filed
                       ☐ as amended under Article 34

2. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.

3. ☐ The applicant wishes the start of the international preliminary examination to be postponed until the expiration of 20 months from the priority date unless the International Preliminary Examining Authority receives a copy of any amendments made under Article 19 or a notice from the applicant that he does not wish to make such amendments (Rule 69.1(d)). *(This check-box may be marked only where the time limit under Article 19 has not yet expired.)*

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: ......English..

[X] which is the language in which the international application was filed.

☐ which is the language of a translation furnished for the purposes of international search.

☐ which is the language of publication of the international application.

☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.

Box No. V ELECTION OF STATES

The applicant hereby elects all eligible States *(that is, all States which have been designated and which are bound by Chapter II of the PCT)*

   excluding the following States which the applicant wishes not to elect:

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

				For International Preliminary Examining Authority use only	
				received	not received
1.	translation of international application	:	sheets	☐	☐
2.	amendments under Article 34	:	sheets	☐	☐
3.	copy (or, where required, translation) of amendments under Article 19	:	sheets	☐	☐
4.	copy (or, where required, translation) of statement under Article 19	:	sheets	☐	☐
5.	letter	:	sheets	☐	☐
6.	other *(specify)*	:	sheets	☐	☐
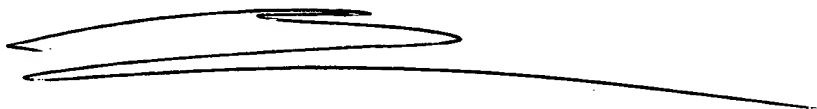
The demand is also accompanied by the item(s) marked below:

1. [X] fee calculation sheet

2. ☐ separate signed power of attorney

3. [X] copy of general power of attorney;
reference number, if any: GA 21396

4. ☐ statement explaining lack of signature

5. ☐ nucleotide and or amino acid sequence listing in computer readable form

6. ☐ other *(specify)*:

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).

Wiggert Johan Kruk

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply. ☐ The applicant has been informed accordingly.

4. ☐ The date of receipt of the demand is WITHIN the period of 19 months from the priority date as extended by virtue of Rule 80.5.

5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82.

For International Bureau use only

Demand received from IPEA on:

PCT

FEE CALCULATION SHEET

Annex to the Demand for international preliminary examination

International application No. PCT/EP 00/01105	For International Preliminary Examining Authority use only
Applicant's or agent's file reference 402544WO	Date stamp of the IPEA

Applicant

Koninklijke KPN N.V.

Calculation of prescribed fees

1. Preliminary examination fee .... | EUR 1533 | P |

2. Handling fee *(Applicants from certain States are entitled to a reduction of 75% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 25% of the handling fee.)* .... | EUR 147 | H |

3. Total of prescribed fees
Add the amounts entered at P and H and enter total in the TOTAL box .... | EUR 1680 |
TOTAL

Mode of Payment

- [x] authorization to charge deposit account with the IPEA (see below)
- [ ] cheque
- [ ] postal money order
- [ ] bank draft
- [ ] cash
- [ ] revenue stamps
- [ ] coupons
- [ ] other *(specify)*:

Deposit Account Authorization *(this mode of payment may not be available at all IPEAs)*

The IPEA/ **EP** [x] is hereby authorized to charge the total fees indicated above to my deposit account.

[x] *(this check-box may be marked only if the conditions for deposit accounts of the IPEA so permit)* is hereby authorized to charge any deficiency or credit any overpayment in the total fees indicated above to my deposit account.

28090011	11 May 2000	Signature Wiggert Johan Kruk
Deposit Account Number	Date *(day/month/year)*	

Form PCT/IPEA/401 (Annex) (July 1998; reprint January 2000)

See Notes to the fee calculation sheet

ALLGEMEINE VOLLMACHT
GENERAL AUTHORISATION
POUVOIR GENERAL

21396 (rev.)

2 Ich (Wir) / I (We) / Je (Nous)

Koninklijke KPN N.V.

Stationsplein 7

9726 AE GRONINGEN

The Netherlands

3 bevollmächtige(n) hiermit / do hereby authorise / autorise (autorisons) par la présente

KLEIN, Bart   (Professional Representative)

KRUK, Wiggert Johan   (Professional Representative)

mailing address: Koninklijke KPN N.V.

Intellectual Property Group

P.O. Box 95321

2509 CH THE HAGUE

The Netherlands

4 mich (uns) in den durch das Europäische Patentübereinkommen geschaffenen Verfahren in allen meinen (unseren) Patentangelegenheiten zu vertreten, alle Handlungen für mich (uns) vorzunehmen und Zahlungen für mich (uns) in Empfang zu nehmen.
to represent me (us) in all proceedings established by the European Patent Convention and to act for me (us) in all patent transactions and to receive payments on my (our) behalf.
à me (nous) représenter pour ce qui concerne toutes mes (nos) affaires de brevet dans toute procédure instituée par la Convention sur le brevet européen et, à ce titre, à agir en mon (notre) nom et à recevoir des paiements pour mon (notre) compte.

[x] Die Vollmacht gilt auch für Verfahren nach dem Vertrag über die internationale Zusammenarbeit auf dem Gebiet des Patentwesens.
This authorisation shall also apply to the same extent to any proceedings established by the Patent Cooperation Treaty.
Ce pouvoir s'applique également à toute procédure instituée par le Traité de coopération en matière de brevets.

[ ] Weitere Vertreter sind auf einem gesonderten Blatt angegeben. / Additional representatives indicated on supplementary sheet.
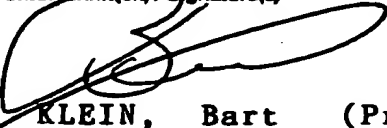Les autres mandataires sont mentionnés sur une feuille supplémentaire.

5 [x] Untervollmacht kann erteilt werden. / Sub-authorisation may be given. / Le pouvoir pourra être délégué.

6 [x] Bitte die gelbe Kopie, ergänzt um die Nr. der allgemeinen Vollmacht, an den Vollmachtgeber zurücksenden.
Please return the yellow copy, supplemented by the General Authorisation No., to the authorisor.
Prière de renvoyer la copie jaune au mandant, munie du n° du pouvoir général.

Ort / Place / Lieu **The Hague**   Datum / Date **April 27, 1999**

Unterschrift(en) / Signature(s)

KLEIN, Bart   (Professional Representative)

7 Das Formblatt muß vom (von den) Vollmachtgeber(n) (bei juristischen Personen vom Unterschriftsberechtigten) eigenhändig unterzeichnet sein. Nach der Unterschrift bitte den (die) Namen des (der) Unterzeichneten mit Schreibmaschine wiederholen (bei juristischen Personen die Stellung des Unterschriftsberechtigten innerhalb der Gesellschaft angeben).
The form must bear the personal signature(s) of the authorisor(s) (in the case of legal persons, that of the officer empowered to sign). After the signature, please type the name(s) of the signatory(ies) adding, in the case of legal persons, his (their) position within the company.
Le formulaire doit être signé de la propre main du (des) mandant(s) (dans le cas de personnes morales, de la personne ayant qualité pour signer). Veuillez ajouter à la machine, après la signature, le (les) nom(s) du (des) signataire(s) en mentionnant, dans le cas de personnes morales, ses (leurs) fonctions au sein de la société.

PCT ●

REQUEST

The undersigned requests that the present
international application be processed
according to the Patent Cooperation Treaty.

Applicant's or agent's file reference
(if desired) (12 characters maximum) **402544WO**

Box No. I   TITLE OF INVENTION

Box No. II   APPLICANT

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

KONINKLIJKE KPN N.V.
Stationsplein 7
9726 AE   GRONINGEN
The Netherlands

☐ This person is also inventor.

Telephone No.
+31 70 3323678

Facsimile No.
+31 70 3323840

Teleprinter No.

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
NL	NL

This person is applicant for the purposes of: ☐ all designated States   ☒ all designated States except the United States of America   ☐ the United States of America only   ☐ the States indicated in the Supplemental Box

---

Box No. III   FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

VAN ELSAS
Peter Alexander
Cederstraat 20
1505 AD   ZAANDAM
The Netherlands

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality:	State *(that is, country)* of residence:
NL	NL

This person is applicant for the purposes of: ☐ all designated States   ☐ all designated States except the United States of America   ☒ the United States of America only   ☐ the States indicated in the Supplemental Box

☒ Further applicants and/or (further) inventors are indicated on a continuation sheet.

Box No. IV   AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCE

The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as: ☒ agent   ☐ common representative

Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*

KLEIN, Bart
KONINKLIJKE KPN N.V.
P.O. Box 95321
2509 CH   THE HAGUE
The Netherlands

Telephone No.
+31 70 3323678

Facsimile No.
+31 70 3323840

Teleprinter No.

☐ Address for correspondence: Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.

Form PCT/RO/101 (first sheet) (July 1998; reprint January 2000)   *See Notes to the request form*

Continuation of Box No. III	FURTHER APPLICANT(S) AND/OR (FURTHER) INVENTOR(S)

If none of the following sub-boxes is used, this sheet should not be included in the request.

Name and address: *(Family name followed by given name: for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

VOGEL
Heidi
Biltstraat 461
3572 AX   UTRECHT
The Netherlands

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality: NL	State *(that is, country)* of residence: NL

This person is applicant for the purposes of: ☐ all designated States   ☐ all designated States except the United States of America   ☒ the United States of America only   ☐ the States indicated in the Supplemental Box

---

Name and address: *(Family name followed by given name: for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

MURNANE
Aisling
Newtonstraat 197
2562 KG   DEN HAAG
The Netherlands

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality: IE	State *(that is, country)* of residence: NL

This person is applicant for the purposes of: ☐ all designated States   ☐ all designated States except the United States of America   ☒ the United States of America only   ☐ the States indicated in the Supplemental Box

---

Name and address: *(Family name followed by given name: for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

ROOS VAN RAADSHOOVEN
Leon Antonius
Violiervaart 55
2724 VS   ZOETERMEER
The Netherlands

This person is:

☐ applicant only

☒ applicant and inventor

☐ inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality: NL	State *(that is, country)* of residence: NL

This person is applicant for the purposes of: ☐ all designated States   ☐ all designated States except the United States of America   ☒ the United States of America only   ☐ the States indicated in the Supplemental Box

---

Name and address: *(Family name followed by given name: for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)*

This person is:

☐ applicant only

☐ applicant and inventor

☐ inventor only *(If this check-box is marked, do not fill in below.)*

State *(that is, country)* of nationality:	State *(that is, country)* of residence:

This person is applicant for the purposes of: ☐ all designated States   ☐ all designated States except the United States of America   ☐ the United States of America only   ☐ the States indicated in the Supplemental Box

---

☐ Further applicants and/or (further) inventors are indicated on another continuation sheet.

Form PCT/RO/101 (continuation sheet) (July 1998; reprint January 2000)   *See Notes to the request form*

PCT/EP00/01105

Box No.V   DESIGNATION OF ST

The following designations are hereby made under Rule 4.9(a) *(mark the applicable check-boxes; at least one must be marked)*:

Regional Patent

☒ **AP** ARIPO Patent: GH Ghana, GM Gambia, KE Kenya, LS Lesotho, MW Malawi, SD Sudan, SL Sierra Leone, SZ Swaziland, TZ United Republic of Tanzania, UG Uganda, ZW Zimbabwe, and any other State which is a Contracting State of the Harare Protocol and of the PCT

☒ **EA** Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Belarus, KG Kyrgyzstan, KZ Kazakhstan, MD Republic of Moldova, RU Russian Federation, TJ Tajikistan, TM Turkmenistan, and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT

☒ **EP** European Patent: AT Austria, BE Belgium, CH and LI Switzerland and Liechtenstein, CY Cyprus, DE Germany, DK Denmark, ES Spain, FI Finland, FR France, GB United Kingdom, GR Greece, IE Ireland, IT Italy, LU Luxembourg, MC Monaco, NL Netherlands, PT Portugal, SE Sweden, and any other State which is a Contracting State of the European Patent Convention and of the PCT

☒ **OA** OAPI Patent: BF Burkina Faso, BJ Benin, CF Central African Republic, CG Congo, CI Côte d'Ivoire, CM Cameroon, GA Gabon, GN Guinea, GW Guinea-Bissau, ML Mali, MR Mauritania, NE Niger, SN Senegal, TD Chad, TG Togo, and any other State which is a member State of OAPI and a Contracting State of the PCT *(if other kind of protection or treatment desired, specify on dotted line)* ....

National Patent *(if other kind of protection or treatment desired, specify on dotted line)*:

☒ AE United Arab Emirates
☒ AL Albania
☒ AM Armenia
☒ AT Austria
☒ AU Australia
☒ AZ Azerbaijan
☒ BA Bosnia and Herzegovina
☒ BB Barbados
☒ BG Bulgaria
☒ BR Brazil
☒ BY Belarus
☒ CA Canada
☒ CH and LI Switzerland and Liechtenstein
☒ CN China
☒ CR Costa Rica
☒ CU Cuba
☒ CZ Czech Republic
☒ DE Germany
☒ DK Denmark
☒ DM Dominica
☒ EE Estonia
☒ ES Spain
☒ FI Finland
☒ GB United Kingdom
☒ GD Grenada
☒ GE Georgia
☒ GH Ghana
☒ GM Gambia
☒ HR Croatia
☒ HU Hungary
☒ ID Indonesia
☒ IL Israel
☒ IN India
☒ IS Iceland
☒ JP Japan
☒ KE Kenya
☒ KG Kyrgyzstan
☒ KP Democratic People's Republic of Korea
☒ KR Republic of Korea
☒ KZ Kazakhstan
☒ LC Saint Lucia
☒ LK Sri Lanka

☒ LR Liberia
☒ LS Lesotho
☒ LT Lithuania
☒ LU Luxembourg
☒ LV Latvia
☒ MA Morocco
☒ MD Republic of Moldova
☒ MG Madagascar
☒ MK The former Yugoslav Republic of Macedonia
☒ MN Mongolia
☒ MW Malawi
☒ MX Mexico
☒ NO Norway
☒ NZ New Zealand
☒ PL Poland
☒ PT Portugal
☒ RO Romania
☒ RU Russian Federation
☒ SD Sudan
☒ SE Sweden
☒ SG Singapore
☒ SI Slovenia
☒ SK Slovakia
☒ SL Sierra Leone
☒ TJ Tajikistan
☒ TM Turkmenistan
☒ TR Turkey
☒ TT Trinidad and Tobago
☒ TZ United Republic of Tanzania
☒ UA Ukraine
☒ UG Uganda
☒ US United States of America
☒ UZ Uzbekistan
☒ VN Viet Nam
☒ YU Yugoslavia
☒ ZA South Africa
☒ ZW Zimbabwe

Check-boxes reserved for designating States which have become party to the PCT after issuance of this sheet:

☐ ....
☐ ....

Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. *(Confirmation (including fees) must reach the receiving Office within the 15-month time limit.)*

Form PCT/RO/101 (second sheet) (January 2000)   *See Notes to the request form*

Supplemental Box	If the Supplemental Box is not used, this sheet should not be included in the request.

1. If, in any of the Boxes, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No. ...." [indicate the number of the Box] and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:

(i) if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;

(ii) if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;

(iii) if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;

(iv) if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;

(v) if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;

(vi) if, in Box No. VI, there are more than three earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;

(vii) if, in Box No. VI, the earlier application is an ARIPO application: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed.

2. If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.

3. If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.
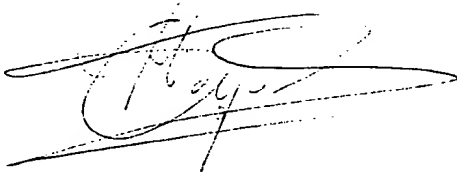
VAN ELSAS
Peter Alexander

Supplemental Box   *If the Supplemental Box is not used, this sheet should not be included in the request.*

1. If, in any of the Boxes, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No. ...." [indicate the number of the Box] and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:

(i) *if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;*

(ii) *if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;*

(iii) *if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;*

(iv) *if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;*

(v) *if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;*

(vi) *if, in Box No. VI, there are more than three earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;*

(vii) *if, in Box No. VI, the earlier application is an ARIPO application: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed.*

2. If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.

3. If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.

VOGEL
Heidi

| Supplemental Box | *If the Supplemental Box is not used, this sheet should not be included in the request.* |

1. If, in any of the Boxes, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No. ...." [indicate the number of the Box] and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:

(i)   if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;

(ii) if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;

(iii) if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;

(iv) if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;

(v)   if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;

(vi) if, in Box No. VI, there are more than three earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;

(vii) if, in Box No. VI, the earlier application is an ARIPO application: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed.

2.   If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.

3.   If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.
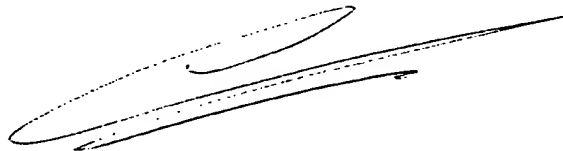
MURNANE
Aisling

Supplemental Box   *If the Supplemental Box is not used, this sheet should not be included in the request.*

1. *If, in any of the Boxes, the space is insufficient to furnish all the information: in such case, write "Continuation of Box No. ..." [indicate the number of the Box] and furnish the information in the same manner as required according to the captions of the Box in which the space was insufficient, in particular:*

(i)   *if more than two persons are involved as applicants and/or inventors and no "continuation sheet" is available: in such case, write "Continuation of Box No. III" and indicate for each additional person the same type of information as required in Box No. III. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below;*

(ii) *if, in Box No. II or in any of the sub-boxes of Box No. III, the indication "the States indicated in the Supplemental Box" is checked: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the applicant(s) involved and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is applicant;*

(iii) *if, in Box No. II or in any of the sub-boxes of Box No. III, the inventor or the inventor/applicant is not inventor for the purposes of all designated States or for the purposes of the United States of America: in such case, write "Continuation of Box No. II" or "Continuation of Box No. III" or "Continuation of Boxes No. II and No. III" (as the case may be), indicate the name of the inventor(s) and, next to (each) such name, the State(s) (and/or, where applicable, ARIPO, Eurasian, European or OAPI patent) for the purposes of which the named person is inventor;*

(iv) *if, in addition to the agent(s) indicated in Box No. IV, there are further agents: in such case, write "Continuation of Box No. IV" and indicate for each further agent the same type of information as required in Box No. IV;*

(v)   *if, in Box No. V, the name of any State (or OAPI) is accompanied by the indication "patent of addition," or "certificate of addition," or if, in Box No. V, the name of the United States of America is accompanied by an indication "continuation" or "continuation-in-part": in such case, write "Continuation of Box No. V" and the name of each State involved (or OAPI), and after the name of each such State (or OAPI), the number of the parent title or parent application and the date of grant of the parent title or filing of the parent application;*

(vi) *if, in Box No. VI, there are more than three earlier applications whose priority is claimed: in such case, write "Continuation of Box No. VI" and indicate for each additional earlier application the same type of information as required in Box No. VI;*

(vii) *if, in Box No. VI, the earlier application is an ARIPO application: in such case, write "Continuation of Box No. VI", specify the number of the item corresponding to that earlier application and indicate at least one country party to the Paris Convention for the Protection of Industrial Property or one Member of the World Trade Organization for which that earlier application was filed.*

2. *If, with regard to the precautionary designation statement contained in Box No. V, the applicant wishes to exclude any State(s) from the scope of that statement: in such case, write "Designation(s) excluded from precautionary designation statement" and indicate the name or two-letter code of each State so excluded.*

3. *If the applicant claims, in respect of any designated Office, the benefits of provisions of the national law concerning non-prejudicial disclosures or exceptions to lack of novelty: in such case, write "Statement concerning non-prejudicial disclosures or exceptions to lack of novelty" and furnish that statement below.*

ROOS VAN RAADSHOOVEN
Leon Antonius

KINGDOM OF THE (crest) NETHERLANDS

PATENT OFFICE

This certifies that in the Netherlands, on 22 February 1999, a patent application was

filed under number 1011357, in the name of:

Koninklijke KPN N.V.

of Groningen

for: "Personal-assistant system"

Rijswijk, 21 December 1999.

On behalf of the Chairman of the Patent Office,

(signature)

(A.W. van der Kruk)

Personal-assistant system.

      The invention relates to a personal-assistant system within a computer system.

5   In addition, the invention relates to a method for providing a personal-assistant system within a computer system.

      Such systems and methods are generally known. An example thereof is Microsoft's Firefly system. In said system, a user may have an agent - arranged as a computer program within a computer

10   network - carry out an order to compose a list having musical compact discs which are interesting to the user. The agent is arranged to carry out said task autonomously, the agent being capable of shifting within the computer network and making contact with other agents who are active within the system. From the contact with other agents,

15   inter alia, the agent may obtain information to complete his task.

      With such agent systems, there are associated a number of drawbacks. It is detrimental that such agent systems result in a heavy burden on the network and the computers of the system. A cause thereof is that the agents are very extensive and complex computer

20   programs, which is required for them to be able to carry out their task, to be able to move through the computer network, and to make contact with other agents. The communication between the agents themselves, which is required for an optimum functioning of the agents, is another cause of the heavy burden on the computer network.

25   A further, and major, drawback is that, due to the great freedom and independence of the agents within such an agent system, it is hardly feasible to control the contacts made by the agents with third parties. As a result, an agent is capable of inadvertently providing confidential information to, or copying incorrect information from, an

30   unreliable third party.

      The object of the invention is to provide a system which eliminates said problems. To this end, according to the invention a system of the type described above is characterised by a personal-assistant environment, comprising a plurality of programs operating as

35   a personal assistant, each personal assistant being arranged to communicate with a single user, at any rate one personal-service-agent environment, comprising a plurality of programs operating as personal-service agents, each personal-service agent being arranged for carrying out at least one specific service, and each personal-service

40   agent being in communicative connection with a single associated

personal assistant and a processing-part environment, comprising at least one processing part, the at least one processing part being arranged for processing data from at least two personal-service agents.

5   The invention also provides for a method of the type described above, characterised by the steps of initiating a program operating as a personal assistant for each respective user, initiating at least one program operating as a personal-service agent for each respective personal assistant, providing a communicative connection between a

10   personal assistant and its associated at least one personal-service agent, and providing a communicative connection between the user and his personal assistant.

    Since the personal-agent system according to the invention provides for a personal assistent for each user and associated

15   personal-service agents, the user communicating directly only with his personal assistant, who subsequently passes on orders from the user to the personal-service agent in question, there is obtained a very efficient personal-agent system.

    In addition, problems regarding unreliable third parties are

20   avoided since the personal assistant and the personal-service agents of a user operate exclusively for their own user. Since interaction with agents of third parties does not take place directly, but by way of a neutral processing part, it is avoided that possible confidential information is inadvertently exchanged.

25   By constructing the system according to the invention in such a manner that the parts in question are self-learning with respect to user behaviour and wishes, the interactions with the user are decreased so that a further reduction of the burden on the system is obtained. The adjustment to the user of the parts has the additional

30   favourable effect that the quality of the service to the user increases.

    The invention will be further clarified in the following description of an exemplary embodiment of the invention, with reference to the drawing enclosed.

35   The single figure schematically shows an example of a system according to the invention.

    The figure shows a personal-agent system 1 according to the invention. System 1 is provided with a receptor section 2 for setting up a communicative connection with users, a central control unit 6 for

40   distributing information flows, and an environment 10 of personal

assistants, two environments 20, 30 having personal-service agents, and an environment 40 for processing parts.

The personal-assistant environment 10 of the system 1 in this example is provided with four personal assistants 11, 12, 13 and 14. Each personal assistant is allotted to a single user who may set up a connection exclusively with his own personal assistant.

For a user, his own personal assistant is the only means by which he may utilise the system 1. The personal assistants are therefore arranged to communicate with their own user, e.g., to receive orders or to pass on information obtained to the user. In addition, the personal assistant is arranged for communication with personal-service agents to be discussed below, e.g., for passing on orders to, or receiving results from, the personal-service agents.

In this example, there are two personal-service-agent environments present, arranged as a secretary environment 20 having personal-secretary agents in the form of secretaries 21, 22, 23 and, as a personal-travelling-agent environment having travelling agents 31, 32 and 34. Personal-service agents, such as the travelling agents and secretaries referred to above, operate exclusively for a single user. To achieve this, the personal-service agents are connected to the personal assistant of their own user. Having said this, the invention is not limited to application with two service-agent environments; any number of service-agent environments may be chosen.

The processing-part environment 40 is provided with a processing part in the form of an appointment maker 41. Said appointment maker 41 is arranged for processing, based on data as supplied by a service agent such as, e.g., a secretary and, if necessary, making contact with other service agents. In this connection, the data of the service agents is treated confidentially. The appointment maker 41 is referred to by way of example of a processing part, and the invention is also applicable with other processing parts.

A user is always provided with a personal assistant, since the communication with the personal-assistant system takes place by way of the personal assistant. In addition, each user is provided with at least a personal-service agent, but the user does have the choice of the service agent he prefers to use. Since the user chooses the functions required by him, there occur no unused elements in the system. As a result, the system is kept as small as possible, and therefore operates efficiently.

The personal assistant 11 disposes of two personal-service agents, i.e., a secretary 21 and a travelling agent 31. The secretary 21 is implemented in the form of an independently operating program which is especially arranged for carrying out specific tasks, in this case carrying out secretarial tasks such as, e.g., managing the agenda of the user and making appointments with third parties. The travelling agent 31 is also implemented in the form of an independently operating program which is especially arranged for carrying out specific tasks, in this case, by way of example, planning a travelling schedule.

Since the user is permitted to choose which tasks he wants to have the personal-assistant system carry out, not all possible service agents need be allotted to a personal assistant. Thus, the personal assistant 13 is only provided with a secretary 23, and the personal assistant 14 is only provided with a travelling agent 34.

Because in the system according to the invention, the assistants and agents are capable only of communicating with predetermined parties according to fixed rules, therewith determining a social hierarchy, the reliability of the system is guaranteed. Because the hierarchy also prevents unnecessary communication, the burden on the system is reduced. Therewith, a personal-assistant system is obtained which is reliable, purposeful and efficient to users.

System 1 is implemented in the form of a computer system, including a computer network. The environments 10, 20, 30 and 40 may each wholly or partly consist of physical and logical environments. In this connection, a physical environment is determined by a single computer, and a logical environment may comprise several computers, the boundaries of the environment being determined by participants' data, such as, e.g., an address list which may be stored in, e.g., the central control unit 6.

The communication takes place by way of communicative connections comprising all options for transferring data, both unidirectional and bidirectional connections, as well as permanent and temporary connections. In particular, there is deemed to be included exchange of data within networks, such as intranet, Internet, and the protocols required for the exchange of data within a computer network, and in particular relating to agent software.

In this embodiment, system 1 is arranged, by way of example, for four users. The invention may, however, be applied to other numbers of users. In this example, the users may make contact, by way of a

personal computer 60, with a modem by way of a telephone line, with the receptor section 2. By way of a user interface of the personal computer 60, the users may pass on information to, and receive it from, system 1. The way of interaction, which is referred to here, of

5   the user with the system 1 by way of the receptor section 2, is referred to here exclusively by way of example; the invention is also applicable with other ways of communication capable of being applied between a user and a computer system. Such ways are known, so that for briefness' sake there is refrained from a detailed description.

10   The personal assistants 11, 12, 13 and 14, as well as the service agents 21, 22, 23, 31, 32 and 34 are implemented as independently operating programs such as, e.g., an agent. Such programs are generally known, so that for briefness' sake there is refrained from a detailed description.

15   In operation, a first user makes contact, by way of a personal computer 60, with the receptor section 2 of the system 1. The receptor section 2 provides a communication channel to the central control unit 6 which, based on the identity of the first user, locates its associated personal assistant 11, and sets up a connection. In

20   this example, the central control unit 6 is implemented with an address book with location data of all parts of the system 1. The various parts of the system are capable of obtaining, at the central control unit 6, the data required for making contact with another part. Based on the data present within the central control unit 6, it

25   may decide whether or not to provide information to a part in question; as a result, the central control unit 6 protects the hierarchy within system 1. Therewith, it is also achieved that confidential data is not supplied to unreliable parties.

An example of a service to be rendered by the personal-assistant

30   system according to the invention is making appointments.

A first user then passes on to his assistant 11 that he wants to make an appointment with, e.g., a second and a third user on a point in time X and a location Z.

The assistant 11 passes on the information relating to the

35   appointment to the secretary 21, who is also associated with the first user. The secretary 21 analyses the information and makes contact with a processing unit 41 operating as an appointment maker, with the instruction of making an appointment for the first, second and third users at the point in time between X and Y and location Z. The

40   appointment maker 41 then makes contact with the secretaries 22 and 23

of the second and third users, respectively. Said secretaries 22 and 23 check whether the appointment in question is permitted to take place, based on the agenda of their user. Both secretaries 22 and 23 pass on their wishes relating to the time and place to the appointment

5   maker 41, who subsequently, based on the wishes of all secretaries involved, determines the optimum appointment. In this connection, the location and time offering the best solution for all users are sought. For all those involved, the most acceptable point in time proves to be X' and for the location Z'. Having said this, in another modification

10   of the embodiment processing parts may also be subject to other criteria in processing data from service agents. In the present example, the wishes of a specific user might prevail over those of other users, e.g., since said user is available only at, e.g., a specific number of points in time, or is bound to a specific location.

15   The appointment maker 41 passes on the information on the appointment determined by him on point in time X' and location Z' to the secretaries 21, 22 and 23, who note the appointment in the agenda of the user in question and notify the associated assistant 11, 12 and 13 of the appointment. When their user makes contact again, the

20   assistants 11, 12 and 13 will notify the user of the appointment.

          The assistant 11, which has been notified of the information of the appointment in the meantime, now notifies the travelling agent 31 associated with it of the appointment with the instruction of drawing up a travelling schedule with which the user will arrive at the

25   appointed location at the appointed time. The travelling agent 31 then draws up the required travelling schedule and passes it on to the assistant 11, who will pass on said schedule at a next contact with the user. In a modification of the embodiment of the invention, the personal-service agents of a user may directly exchange specified

30   information, apart from the option referred to above of exchanging information by way of the personal assistant. In this connection, the service agents must be aware of each other's existence and options. A secretary of the travelling agent of a user might hear, e.g., what the travelling time between two locations amounts to, in order to be

35   capable, e.g., of better managing the agenda of the user in this way. Since both agents operate exclusively for the same user, problems relating to confidential data are avoided. Due to said direct communication between the service agents, the burden on the system is reduced.

Although in this example there was assumed a central control unit 6, provided with an address book for regulating the social hierarchy within the system, other embodiments of such a control system are also applicable, such as, e.g., identification of agents by way of a password or key. There may also be applied a bulletin-board system.

In a modification of the embodiment of the invention, the personal assistants are provided with a self-learning module which is arranged to learn from the interaction with the user and to adjust the behaviour of the assistants thereto. Such modules are formed by a computer program and are generally known. Since the personal assistant is capable of adjusting itself to the wishes of the user, the user receives a better service rendered by the personal assistants and, in doing so, the amount of communication is reduced, which further decreases the burden on the system.

In another modification of the embodiment of the invention, the personal-service agents are additionally provided with such a self-learning module, so that the service agents, too, achieve the advantages referred to above. In addition, it is possible here to have the personal assistant exchange learning information with the service agent in question in order thus to accelerate the learning process.

In a further modification of the embodiment, it is possible that the self-learning modules of personal assistants within an assistant environment exchange learning information in order thus to learn from other personal assistants. This may take place, e.g., by having the programs which constitute the assistants communicate among themselves. For this purpose, the user must expressly give his permission to his personal assistant in advance, and in this connection indicate that the assistant is permitted to gain contact with assistants of third parties and indicate which personal information the assistant may liberate to third parties. Furthermore, it is possible to indicate with which assistants the assistant of the user is permitted to communicate. Through this selective communication, it is prevented that confidential information of the user be inadvertently passed on, as a result of which the trust of the user in the assistant will increase. In this connection, the data traffic between the assistants is limited to the required amount, so that the system is not unnecessarily burdened. Such an exchange of learning information is

also possible within an environment of service agents in the way described above.

The implementation of the invention in a computer system may take place in various ways; the embodiment referred to in the example must be considered as being non-limitative. The program parts for the implementation of the elements of the invention may be distributed over a computer network, a program part, e.g., being distributed over several computers, or various parts being present in one and the same computer, or several parts of the same program utilising, e.g., multi-threading.

In an exemplary embodiment of the invention, a personal assistant may be formed for a new user at the first instance of use of the personal-assistant system. This may be effected, e.g., by making a copy of a generic personal-assistant program, and then personalising said copy by, e.g., adding personal data of the user to the program. In the same way, the user may initiate the personal-service agents desired by him. The assistant with associated agents created in this manner may then, e.g., be added to the central control unit and thereby be ratified.

CLAIMS

1.   Personal-assistant system within a computer system, characterised by

5   –   a personal-assistant environment (10), comprising a plurality of programs operating as personal assistants (11, 12, 13, 14), each personal assistant (11, 12, 13, 14) being arranged to communicate with a single user,

–   at least one personal-service-agent environment (20), comprising
10   a plurality of programs operating as personal-service agents (21, 22, 23, 31, 32, 34), each personal-service agent (21, 22, 23, 31, 32, 34) being arranged for carrying out at least one specific service, and each personal-service agent (21, 22, 23, 31, 32, 34) being in communicative connection with a single
15   associated personal assistant (11, 12, 13, 14), and

–   a processing-part environment (40), comprising at least one processing part (41), the at least one processing part (41) being arranged for processing data from at least two personal-service agents (21, 22, 23, 31, 32, 34).
20

2.   Personal-assistant system according to claim 1, characterised by a central control unit (6) having an address-book structure, comprising address data on all parts of the personal-assistant system (1).
25

3.   Personal-assistant system according to claim 2, characterised in that the central control unit (6) is arranged for communicatively connecting a user with his associated personal assistant (11, 12, 13, 14).
30

4.   Personal-assistant system according to any of the preceding claims, characterised in that the central control unit (6) is arranged for selectively setting up communicative connections between parts of the personal-assistant system (1).
35

5.   Personal-assistant system according to any of the preceding claims, characterised in that a personal assistant (11, 12, 13, 14) is provided with a self-learning module, arranged to adjust the behaviour of the personal assistant (11, 12, 13, 14) to the associated user.
40

6.   Personal-assistant system according to any of the preceding claims, characterised in that a personal-service agent (21, 22, 23, 31, 32, 34) is provided with a self-learning module, arranged to adjust the behaviour of the personal-service agent (21, 22, 23, 31, 32, 34) to the associated user.

7.   Personal-assistant system according to any of the preceding claims, characterised in that self-learning modules of personal assistants are arranged to be capable of communicating between themselves.

8.   Personal-assistant system according to any of the preceding claims, characterised in that self-learning modules of personal-service agents are arranged to be capable of communicating with service agents (21, 22, 23, 31, 32, 34) from one and the same service-agent environment (20, 30).

9.   Personal-assistant system according to any of the preceding claims, characterised in that the self-learning modules of the personal assistant of a specific user and the corresponding personal-service agents of the same user are arranged for communication between themselves for personalising the personal assistant in question (11, 12, 13, 14) and the personal-service agents (21, 22, 23, 31, 32, 34).

10.   Method for providing a personal-assistant system within a computer system, characterised by the steps of
-       initiating a program operating as a personal assistant (11, 12, 13, 14) for each respective user,
-       initiating at least one program operating as a personal-service agent (21, 22, 23, 31, 32, 34) for each respective personal assistant,
-       providing a communicative connection between a personal assistant (11, 12, 13, 14) and its associated at least one personal-service agent (21, 22, 23, 31, 32, 34), and providing a communicative connection between the user and his personal assistant (11, 12, 13, 14).

11.   Method according to claim 10, characterised by the steps of
-       providing at least a processing part (41), and

    -    providing a communicative connection between personal-service agents (21, 22, 23, 31, 32, 34) and processing parts (41).

12. Method according to any of the claims 10-11, characterised by the step of

    -    arranging a personal assistant (11, 12, 13, 14) as a self-learning program for adjustment to the behaviour of the associated user.

13. Method according to any of the claims 10-12, characterised by the step of

    -    arranging a personal-service agent (21, 22, 23, 31, 32, 34) as a self-learning program for adjustment to the behaviour of the associated user.

14. Method according to any of the claims 10-13, characterised by the step of

    -    putting into communicative connection self-learning modules of specific personal assistants (11, 12, 13, 14).

15. Method according to any of the claims 10-14, characterised by the step of

    -    putting into mutual communicative connection self-learning modules of specific personal-service agents (21, 22, 23, 31, 32, 34).

ABSTRACT

Personal-assistant system within a computer system, with a personal-assistant environment (10) having a plurality of personal assistants (11, 12, 13, 14), each personal assistant (11, 12, 13, 14) being arranged for communicating with a single user, a personal-service-agent environment (20) having a plurality of personal-service agents (21, 22, 23, 31, 32, 34), each personal-service agent (21, 22, 23, 31, 32, 34) being arranged for carrying out a specific service, and each personal-service agent (21, 22, 23, 31, 32, 34) being in communicative connection with a single associated personal assistant (11, 12, 13, 14), and a processing-part environment (40), having a processing part (41), the processing part (41) being arranged for processing data from several personal-service agents (21, 22, 23, 31, 32, 34).